72. (Amended) An optical scanner according to claim 71, wherein that element of the imaging lens which has such a surface that the curvature ~~in~~ the sub-scanning direction varies continuously along the main scanning direction over the effective area of said imaging lens is made of plastic.

REMARKS

Reconsideration and allowance of the subject application are respectfully solicited.

Claims 61 through 72 are pending, with Claim 61 being independent. Claims 68 and 72 have been amended. The specification has been amended to reflect Applicant's claim for priority under 35 U.S.C. § 120 to Application No. 08/522,118 filed August 31, 1995, Patent No. 5,818,505. Favorable consideration in this regard is earnestly solicited.

DISCUSSION OF INTERVIEW

Applicant gratefully wishes to thank the Examiner for extending the courtesy of granting and conducting an interview on January 26, 2001. At the interview, Applicant's representatives and the Examiner discussed the proposed interference. Applicant understands from the interview that the Examiner is in tentative agreement with the instant Request for Interference, and favorable consideration is earnestly solicited. Applicant also gratefully wishes to

thank the Examiner for the courtesies extended during a conversation on March 8, 2001, to discuss the present amendments to the specification. The Examiner agreed with Applicants that these amendments are formal in nature and will be entered.

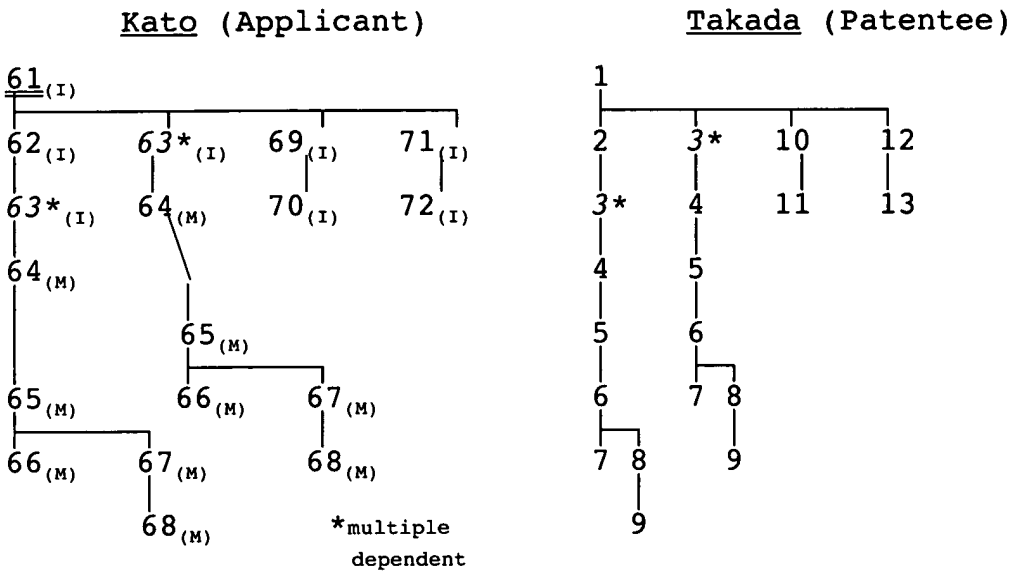
REQUEST FOR INTERFERENCE

Pursuant to 37 CFR 1.607, Applicant respectfully requests that an interference be declared involving all claims, i.e., Claims 61 through 72, of the present application of Manabu Kato ("Kato") and all claims, i.e., Claims 1 through 13, of U.S. Patent No. 5,883,732 ("Takada, et al. '732") to Kyu Takada, et al. ("Takada").

A. Introduction

As noted in the Preliminary Amendment filed March 16, 2000, the Kato claims have been copied either exactly or in modified form from Takada Claims 1 through 4 and 6 through 13. For ease of discussion, the relationship between the Kato claims and the Takada claims has been set forth by Applicant in the following Table A:

TABLE A



The identifier (I) indicates the Kato claims that correspond identically to a Takada claim, while (M) indicates claims which are not identical in scope to a Takada claim.

B. The counts

Applicant respectfully proposes that the interference be declared with two counts. The proposed counts are set forth as follows:

COUNT 1

In an optical scanner having a source of a light beam, a deflector for deflecting said light beam and an imaging lens that focuses the deflected light beam to form a beam spot on a surface to be scanned, the improvement wherein the curvatures in a sub-scanning direction of at least two of

the surfaces of said imaging lens vary continuously along a main scanning direction over the effective area of said imaging lens and independently of the curvatures in the main scanning direction, and wherein the curvatures in the main and sub-scanning directions are non-symmetrical with respect to the optical axis.

COUNT 2

In an optical scanner having a source of a light beam, a deflector for deflecting said light beam and an imaging lens that focuses the deflected light beam to form a beam spot on a surface to be scanned, the improvement wherein the curvatures in a sub-scanning direction of ~~at least~~ two of the surfaces of said imaging lens vary continuously along a main scanning direction over the effective area of said imaging lens and independently of the curvatures in the main scanning direction, and wherein the curvatures in the main and sub-scanning directions are non-symmetrical with respect to the optical axis,

wherein the optical magnification of said imaging lens in the sub-scanning direction is constant over the effective scanning region.

It will be appreciated that the two counts have been formulated upon the basis of various Kato claims, as shown by the following Table B:

TABLE B

Count	Kato claim upon which count is based
1	61
2	62

C. Correspondence of claims to counts

1. Summary

Applicant respectfully submits that the claims correspond to the counts as shown in the following Table C:

TABLE C

Count	Claims corresponding to count
1	Kato Claims 61, 63/61, 64/63/61, 65/64/63/61, 66/65/64/63/61, 67/65/64/63/61, 68/67/65/64/63/61, and 69-72, and Takada Claims 1, 3/1, 4/3/1, 5/4/3/1, 6/5/4/3/1, 7/6/5/4/3/1, 8/6/5/4/3/1, 9/8/6/5/4/3/1, and 10-13
2	Kato Claims 62, 63/62, 64/63/62, 65/64/63/62, 66/65/64/63/62, 67/65/64/63/62, and 68/67/65/64/63/62, and Takada Claims 2, 3/2, 4/3/2, 5/4/3/2, 6/5/4/3/2, 7/6/5/4/3/2, 8/6/5/4/3/2, and 9/8/6/5/4/3/2

2. Detailed explanation of claim correspondence

a. Count 1

Applicant respectfully submits that Kato Claims 61, 63/61, 64/63/61, 65/64/63/61, 66/65/64/63/61, 67/65/64/63/61, 68/67/65/64/63/61, and 69-72, and Takada Claims 1, 3/1, 4/3/1, 5/4/3/1, 6/5/4/3/1, 7/6/5/4/3/1, 8/6/5/4/3/1, 9/8/6/5/4/3/1, and 10-13 correspond to Count 1 as follows:

(1) Kato Claim 61 and Takada Claim 1

Kato Claim 61 and Takada Claim 1 are identical to Count 1.

(2) Kato Claim 69 and Takada Claim 10

Kato Claim 69 and Takada Claim 10 differ from Count 1 in that they require that the imaging lens has a surface that is aspheric in the main scanning direction. However, Applicant submits that it was known in the art to provide such asphere, as shown by U.S. Patent No. 5,111,219 (Makino, et al.) (e.g., col. 4, lines 56-59). Accordingly, Applicant submits that Kato Claim 69 and Takada Claim 10 would have been obvious over Count 1 in view of Makino, et al.

(3) Kato Claim 70 and Takada Claim 11

Kato Claim 70 and Takada Claim 11 differ from Count 1 in that they recite the aspheric surface discussed above with respect to Kato Claim 69 and Takada Claim 10 and further in that they require that the imaging lens has a surface

having a point of inflection in the main scanning direction. However, Applicant submits that it was known in the art to provide the same, as shown by Makino, et al. (e.g., Figs. 1 and 6 through 12). For this reason and the reasons advanced above with respect to Kato Claim 69 and Takada Claim 10, Applicant submits that Kato Claim 70 and Takada Claim 11 would have been obvious over Count 1 in view of Makino, et al.

(4) Kato Claims 71 and 72 and Takada Claims 12 and 13

Kato Claims 71 and 72 and Takada Claims 12 and 13 differ from Count 1 in that they require that the light source has a plurality of light-emitting portions, with Kato Claim 72 and Takada Claim 13 further requiring that the lens is made of plastic or resin respectively. However, Applicant submits that it was known in the art to provide plural light emitting portions, as shown by U.S. Patent No. 5,008,686 (Saito) (e.g., col. 3, lines 47-50), and that the use of resin, as shown by U.S. Patent No. 5,329,399 (Ho) (e.g., col. 4, lines 14-17), or plastic, as shown by Makino, et al. (e.g., col. 4, line 3), was a known expedient. Accordingly, Applicant submits that Kato Claim 71 and Takada Claim 12 would have been obvious over Count 1 in view of Saito, and that Kato Claim 72 and Takada Claim 13 would have been obvious over Count 1 in view of Saito and further in view of either Ho or Makino, et al.

(2) Kato Claim 63/61 and Takada Claim 3/1

Kato Claim 63/61 and Takada Claim 3/1 differ from Count 1 in that they require that the imaging lens is a single lens.

However, Applicant submits that it was known in the art to employ a single lens, as shown by Ho (e.g., col. 3, lines 50-54) or Makino, et al. (e.g., col. 4, lines 4 and 55-56). Accordingly, Applicant submits that Kato Claim 63/61 and Takada Claim 3/1 would have been obvious over Count 1 in view of Ho or Makino, et al.

(3) Kato Claim 64/63/61 and Takada Claims 4/3/1 and 5/4/3/1

Kato Claim 64/63/61 and Takada Claims 4/3/1 and 5/4/3/1 differ from Count 1 in that they require that the imaging lens is a single lens, and further recite that (a) the entrance face of the imaging lens has a cross section taken in the sub-scanning direction which is concave at the center of scanning and convex at either end of scanning, or (b) the exit face of the imaging lens has a cross section taken in the sub-scanning direction which is convex at the center of scanning and concave at either end of scanning, with Takada Claim 5/4/3/1 requiring both (a) and (b).

However, Applicant submits that the use of a single lens was known in the art as shown by Ho or Makino, et al., as discussed above with respect to Kato Claim 63/61 and Takada Claim 4/3/1. Applicant further submits that it was

known in the art to use a surface having opposite concavity/convexity at the center as compared to the ends, as shown by U.S. Patent No. 5,648,865 (Iizuka) (e.g., Fig. 4). Accordingly, Applicant submits that Kato Claim 64/63/61 and Takada 4/3/1 would have been obvious over Count 1 in view of Ho or Makino, et al., and further in view of Iizuka. Since Count 1 recites providing at least --two-- surfaces, Applicant submits that it would have been obvious to apply opposite concavity/convexity as taught by Iizuka to both surfaces of Count 1 so as to arrive at Takada Claim 5/4/3/1. Accordingly, Applicant submits that Takada Claim 5/4/3/1 would have been obvious over Count 1 in view of the same art.

(4) Kato Claims 65/64/63/61, 66/65/64/63/61, 67/65/64/63/61, and 68/67/65/64/63/61, and Takada Claims 6/5/4/3/1, 7/6/5/4/3/1, 8/6/5/4/3/1, and 9/8/6/5/4/3/1

The above-listed claims differ from Count 1 in the aspects discussed above with respect to Kato Claim 64/63/61 and Takada Claim 5/4/3/1 (i.e., the use of a single lens, with the concavity/convexity of the entrance or entrance and exit surfaces), and further in that they variously recite one or more of the following features:

(a) that the imaging lens has a surface that is aspheric in the main scanning direction (Kato Claims 65/64/63/61, 66/65/64/63/61, 67/65/64/63/61, and 68/67/65/64/63/61, and Takada Claims 6/5/4/3/1, 7/6/5/4/3/1, 8/6/5/4/3/1, and 9/8/6/5/4/3/1);

(b) that the imaging lens has a point of inflection in the main scanning direction (Kato Claim 66/65/64/63/61 and Takada Claim 7/6/5/4/3/1);

(c) that the light source has a plurality of light-emitting portions (Kato Claims 67/65/64/63/61 and 68/65/64/63/61 and Takada Claims 8/6/5/4/3/1 and 9/8/6/5/4/3/1); and/or

(d) the use of plastic or resin for the imaging lens (Kato Claim 68/65/64/63/61 and Takada Claim 9/8/6/5/4/3/1).

Applicant submits that features (a) through (d) were known in the art as discussed above with respect to Kato Claims 69 through 72. For this reason and the reasons advanced above with respect to Kato Claim 65/64/63/61 and Takada Claim 5/4/3/1, Applicant submits that Kato Claims 65/64/63/61, 66/65/64/63/61, 67/65/64/63/61, and 68/67/65/64/63/61, and Takada Claims 6/5/4/3/1, 7/6/5/4/3/1, 8/6/5/4/3/1, and 9/8/6/5/4/3/1 would have been obvious over Count 1 in view of either Ho or Makino, et al., and further in view of Iizuka, and still further in view of Ho, Makino, et al., and Saito in the combinations proposed above.

b. Count 2

Applicant respectfully submits that Kato Claims 62, 63/62, 64/63/62, 65/64/63/62, 66/65/64/63/62, 67/65/64/63/62, and 68/67/65/64/63/62, and Takada Claims 2, 3/2, 4/3/2, 5/4/3/2, 6/5/4/3/2, 7/6/5/4/3/2, 8/6/5/4/3/2, and 9/8/6/5/4/3/2 correspond to Count 2 as follows:

(1) Kato Claim 62 and Takada Claim 2

Kato Claim 62 and Takada Claim 2 are identical to Count 1.

(2) Kato Claims 63/62, 64/63/62, 65/64/63/62, 66/65/64/63/62, 67/65/64/63/62, and 68/67/65/64/63/62, and Takada Claims 3/2, 4/3/2, 5/4/3/2, 6/5/4/3/2, 7/6/5/4/3/2, 8/6/5/4/3/2, and 9/8/6/5/4/3/2

Kato Claims 63/62, 64/63/62, 65/64/63/62, 66/65/64/63/62, 67/65/64/63/62, and 68/67/65/64/63/62, and Takada Claims 3/2, 4/3/2, 5/4/3/2, 6/5/4/3/2, 7/6/5/4/3/2, 8/6/5/4/3/2, and 9/8/6/5/4/3/2 differ from Count 2 in the same aspects that their above-discussed counterparts dependent from Kato Claim 61 and Takada Claim 1 differ from Count 1. By analogy, Applicant therefore submits that these claims correspond to Count 2.

D. Support for Kato claims

Applicant respectfully submits that the following establishes that the terms of independent Kato Claim 61 and dependent Kato Claims 62 through 72, all claims presently pending, are supported by the subject application as follows:

(1) Kato Claim 61

Kato Claim 61 is an independent claim and is supported, e.g., as shown by the following Table D:

TABLE D

Kato Claim 61	Support in present application
[(a)] In an optical scanner having	[(a)] A scanning optical apparatus is disclosed. See, e.g., p. 1, lines 5-6; p. 7, line 24; p. 8, line 14; p. 9, line 7; p. 11, line 15; p. 19, lines 11-12; p. 23, line 23.
[(b)] a source of a light beam,	[(b)] The scanning optical apparatus includes a light source means 1 (see, e.g., Fig. 4A; p. 24, lines 4-6) or 11 (e.g., Figs. 12A, 16A, 20A; p. 35, lines 9-11).
[(c)] a deflector for deflecting said light beam and	[(c)] The scanning optical apparatus also includes a light deflector 5 (see, e.g., Figs. 4A and 12A; p. 24, lines 18-25; Fig. 16A; p. 41, lines 10-11) or polygon mirror 15 (e.g., Fig. 20A; p. 46, line 23).

Kato Claim 61	Support in present application
[(d)] an imaging lens that focuses the deflected light beam to form a beam spot on a surface to be scanned,	[(d)] The scanning optical apparatus further includes an fθ lens 6 (Fig. 4A), 36 (Fig. 12A), 46 (Fig. 16A), or 56 (Fig. 20A) that causes the beam of light deflected by the light deflector to be imaged on a surface. See, e.g., p. 24, line 26 through p. 25, line 5 (Fig. 4A); p. 35, line 24 (Fig. 12A); p. 41, line 19 (Fig. 16A); p. 46, line 20 (Fig. 20A).

Kato Claim 61	Support in present application
[(e)] the improvement wherein the curvatures in a sub-scanning direction of at least two of the surfaces of said imaging lens vary continuously along a main scanning direction over the effective area of said imaging lens and	[(e)] Both lens surfaces of the fθ lens (6, 36, 46, 56) have curvatures in the sub-scanning direction that vary continuously from the on-axis toward the off-axis in the effective portion of the lens. See, e.g., p. 25, lines 5-12 (Fig. 5); p. 37, lines 14-17, and p. 39, lines 5-7 (Fig. 13); p. 39, line 27 through p. 40, line 5, and p. 41, lines 23-25 (Fig. 18); p. 49, lines 3-7 and 21-25 (Fig. 22).

Kato Claim 61	Support in present application
[(f)] independently of the curvatures in the main scanning direction, and	[(f)] The lens shape in the sub-scanning plane is independent of the lens shape in the main scanning plane. See, e.g., p. 8, lines 9 to 10 and 27. See also, e.g., equations (c) & (d) and Table 1, p. 26, line 25 through p. 28; equation (e) and Table 3, p. 36 through p. 37, line 13; equation (f) and Tables 4 and 5, p. 41, line 25 through p. 42, line 8, and pp. 44, 48; Table 2, Page 32; and Table 6, Page 53.
[(g)] wherein the curvatures in the main and sub-scanning directions are non-symmetrical with respect to the optical axis.	[(g)] See (f) above.

(2) Kato Claim 62

Kato Claim 62 depends from Kato Claim 61 and further recites that the optical magnification of said imaging lens in the sub-scanning direction is constant over the effective

scanning region. For support, see, e.g., p. 19, lines 17-18; p. 23, lines 9-11; and p. 38, lines 18-22 ("the lateral magnification in the sub-scanning direction... can be uniformized....").

(3) Kato Claim 63

Kato Claim 63 depends from Kato Claims 61 and 62 and further recites that the imaging lens is a single lens. For support, see, e.g., lenses 6 (Fig. 4A), 26 (Fig. 8A), 36 (Fig. 12A), 46 (Fig. 16A), and 56 (Fig. 20A); see also p. 46, line 6 (see, e.g., Embodiments 1-5).

(4) Kato Claim 64

Kato Claim 64 depends from Kato Claim 63 and further recites that the entrance face of the imaging lens has a cross section taken in the sub-scanning direction which is concave at the center of scanning and convex at either end of scanning. For support, see, e.g., Fig. 13 (and Figs. 12B(1)-(2); p. 37, lines 17-21); Fig. 18 (and Figs. 16B(1)-(2)); and Fig. 22 (and Figs. 20B(1)-(2)) (see, e.g., Embodiments 3-5).

(5) Kato Claim 65

Kato Claim 65 depends from Kato Claim 64 and further recites that the imaging lens has a surface that is aspheric in the main scanning direction, which is supported at, e.g., p. 26, line 20, and p. 41, lines 20 to 21 ("an aspherical surface shape") (see, e.g., Embodiments 3-5).

(6) Kato Claim 66

Kato Claim 66 depends from Kato Claim 65 and further recites that the imaging lens has a surface having a point of inflection in the main scanning direction, as shown by, e.g., Figs. 12A, 14, 16A, and 20A (see, e.g., Embodiments 3-5).

(7) Kato Claim 67

Kato Claim 67 depends from Kato Claim 65 and further recites that the light source has a plurality of light-emitting portions. For support, the present application discloses, e.g., a multibeam optical system with light source means 11 having a plurality of light source units (e.g., p. 35, lines 7-10; p. 49, line 11; p. 50, line 10) (see, e.g., Embodiments 3-5).

(8) Kato Claim 68

Kato Claim 68 depends from Kato Claim 67 and recites the use of plastic (to make the element of the imaging lens which has such a surface that the curvature in the sub-scanning direction varies continuously along the main scanning direction over the effective area of said imaging lens). The present application discloses the use of plastic (see, e.g., p. 11, lines 11-12; p. 25, line 23; p. 40, line 24).

(9) Kato Claims 69 through 72

Kato Claim 69 depends from Kato Claim 61 and like Kato Claim 65 recites that the imaging lens has a surface that is aspheric in the main scanning direction.

Kato Claim 70 depends from Kato Claim 69 and like Kato Claim 66 recites that the imaging lens has a surface having a point of inflection in the main scanning direction.

Kato Claim 71 depends from Kato Claim 61 and like Kato Claim 67 recites that the light source has a plurality of light-emitting portions.

Kato Claim 72 depends from Kato Claim 71 and like Kato Claim 68 recites the use of plastic.

Applicant respectfully submits that such features are supported for the reasons set forth above with respect to Kato Claims 65 through 68.

D. Benefit of earlier applications for priority

Applicant is entitled to benefit of the following applications for proposed Counts 1 and 2:

(1) U.S. Patent Application No. 08/607,169 filed February 26, 1996 (the "'169 Application");

(2) Japanese Patent Application No. 7-66991 filed February 28, 1995 (the "'991 Application");

(3) Japanese Patent Application No. 8-46741 filed February 8, 1996 (the "'741 Application");

(4) U.S. Patent Application No. 08/522,118 filed August 31, 1995, Patent No. 5,818,505 issued October 6, 1998 (the "'118 Application"; copy of specification and drawings attached); and

(5) Japanese Patent Application No. 6-239386 filed September 6, 1994 (the "'386 Application").

In particular, the present application is a filewrapper continuation (under prior 37 CFR 1.62) of the '169 application, and, therefore, the specification and drawings of these applications as filed are identical. The '169 application constitutes a constructive reduction to practice of the subject matter of proposed Counts 1 and 2, which are identical to Kato Claims 61 and 62 whose support is indicated above.

As shown by the following Tables E and F, the terms of proposed Count 1 are also supported by each of the '991, '741, '118, and '386 Applications, thus establishing that each such application constitutes a constructive reduction to

practice of the subject matter of the proposed count (references in Table E are to the pages and line numbers of the sworn English translations filed March 16, 2000, while references in Table F to the '386 Application are to the sworn English translation being filed concurrently herewith).

TABLE E

Count 1	support in '991 Application	support in '741 Application
[(a)] In an optical scanner having	[(a)] A scanning optical apparatus is disclosed. See, e.g., p. 1, [Claim 1], line 1; p. 4, [0001], lines 2-3; p. 12, [0017], lines 2-4.	[(a)] See, e.g., p. 1, [Claim 1], line 1; p. 8, [0001], lines 2-3; pp. 17-18, [0020], lines 2-4.

Count 1	support in '991 Application	support in '741 Application
[(b)] a source of a light beam,	[(b)] The scanning optical apparatus includes a light source means 1. See, e.g., p. 20, [0033], lines 1-2; p. 29, [0052], lines 4-6; Figs. 1, 3.	[(b)] See, e.g., p. 29, [0040]; p. 49, [0075], lines 2-3; Figs. 1, 3, 13, 14 (light source means 1 and 11).
[(c)] a deflector for deflecting said light beam and	[(c)] The scanning optical apparatus also includes a light deflector 5. See, e.g., p. 21, [0036]; Figs. 1, 3.	[(c)] See, e.g., p. 30, [0043], p. 49, [0075], lines 13-14; p. 55, [0086], lines 8-10; Figs. 1, 3, 13, 14 (polygon mirror 5 and 15).

Count 1	support in '991 Application	support in '741 Application
[(d)] an imaging lens that focuses the deflected light beam to form a beam spot on a surface to be scanned,	[(d)] The scanning optical apparatus further includes an fθ lens 6 (Fig. 1) or 36 (Fig. 3) that causes the beam of light deflected by the light deflector to be imaged on a surface. See, e.g., p. 21, [0037], lines 1-3 and 14-18; p. 32, [0058], line 4; Figs. 1, 3.	[(d)] See, e.g., p. 30, [0044], lines 1-3 and 18-21; p. 49, [0075], lines 14-16; Figs. 1, 3, 13, 14 (lens 6, 36, 56).

Count 1	support in '991 Application	support in '741 Application
[(e)] the improvement wherein the curvatures in a sub-scanning direction of at least two of the surfaces of said imaging lens vary continuously along a main scanning direction over the effective area of said imaging lens and	[(e)] Both lens surfaces of the fθ lens (6, 36) have curvatures in the sub-scanning direction that vary continuously from the on-axis toward the off-axis in the effective portion of the lens. See, e.g., p. 21, [0037], lines 7-14; p. 29, [0053], lines 1-14; p. 31, [0056], lines 1-4; p. 33, [0060], lines 1-3; Figs. 7, 9.	[(e)] See, e.g., p. 20, [0023], p. 30, [0044], lines 7-14; p. 47, [0070], lines 1-3; p. 48, [0073], lines 1-6; p. 54, [0082], lines 3-7; p. 58, lines 3-7; Figs. 4, 6, 19, 20 (lens 6, 36, 46, 56).

Count 1	support in '991 Application	support in '741 Application
[(f)] independently of the curvatures in the main scanning direction, and	[(f)] The lens shape in the sub-scanning plane is independent of the lens shape in the main scanning plane. See, e.g., p. 11, [0015], line 14; pp. 23-24, [0041]-[0042], equations (c) and (d); p. 30, [0055], lines 3-6 and equation (e); Figs. 4-6.	[(f)] See, e.g., p. 16, [0018], line 14; p. 17, [0019], line 15; p. 33, [0048], equations (c) and (d); p. 45, [0065], lines 3-6 and equation (e); p. 50, [0076], lines 7-15 and equation (f); Tables 1-5.
[(g)] wherein the curvatures in the main and sub-scanning directions are non-symmetrical with respect to the optical axis.	See (f)	See (f)

TABLE F

Count 1	support in '118 Application	support in '386 Application
[(a)] In an optical scanner having	[(a)] An optical scanning apparatus is disclosed. See, e.g., p. 1, lines 9-12; p. 5, lines 14 and 24; p. 9, lines 21-22; p. 16, line 18; p. 17, lines 12-13; p. 24, lines 11-13; Fig. 2.	[(a)] See, e.g., p. 1, [Claim 1], line 1; p. 3, [0001], lines 2-4; p. 8, [0014], lines 2-3; p. 8, [0015], lines 2-3; p. 17, [0037], lines 3-4; p. 18, [0038], line 10; p. 26, [0058], lines 15-16; Fig. 1.
[(b)] a source of a light beam,	[(b)] The optical scanning apparatus includes a light source means 1. See, e.g., p. 1, line 14; p. 5, line 25; p. 6, lines 1 and 2; p. 10, lines 6-12; Fig. 2.	[(b)] See, e.g., p. 1, [Claim 1], line 3; p. 3, [0001], lines 7-8; p. 8, [0015], line 5; Fig. 1; p. 10, [0018], lines 1-2; p. 10, [0019], line 3.

Count 1	support in '118 Application	support in '386 Application
[(c)] a deflector for deflecting said light beam and	[(c)] The optical scanning apparatus also includes an optical deflector 5. See, e.g., p. 1, lines 15 and 16; p. 6, lines 2 and 6; p. 10, lines 16-25; p. 11, lines 9-11; p. 12, lines 14-16 and 24; p. 13, line 8; p. 14, line 22; p. 17, lines 13-14; p. 20, line 12; p. 21, lines 3, 7 and 8; p. 23, line 5; p. 25, lines 7-8; Fig. 2.	[(c)] See, e.g., p. 1, [claim 1], lines 7-8 and lines 11-12; p. 3, [0001], line 9; p. 8, [0015], lines 9-10 and 13; Fig. 1; p. 11, [0020], lines 5-6; p. 11, [0021]; p. 11, [0022], lines 4-5, 10, and 12-13; p. 13, [0025], lines 10-14; p. 13, [0026], lines 5-6; p. 13 [0027], line 2; p. 15, [0031], line 2; p. 18, [0038], line 12; p. 21, [0046], line 10; p. 22, [0049], lines 6 and 11, p. 24, [0055], line 10.

Count 1	support in '118 Application	support in '386 Application
[(d)] an imaging lens that focuses the deflected light beam to form a beam spot on a surface to be scanned,	[(d)] The optical scanning apparatus further includes an fθ lens 6 (Fig. 2) or 26 (Fig. 7) that causes luminous flux deflected by the optical deflector to be imaged on a surface to be scanned. See, e.g., p. 1, lines 17 and 18; p. 11, lines 1-13; p. 12, lines 1, 16, and 24; p. 13, lines 4-6, 8-10, and 21-22; p. 14, line 16 and 17; p. 15, lines 6-7, and 24; p. 16, lines 1-3; p. 17, line 9, 20, and 22-23; p. 18, lines 5 and 10; p. 19, line 5; p. 20, lines 4-7, and 25; p. 21, lines 7, 15-18, 21, and 23; p. 22, lines 3, 4, and 22-24; p. 23, lines 8, 18, and 21-23; p. 24, lines 1 and 5; p. 25, line 9.	[(d)] See, e.g., p. 1, [Claim 1], line 9; p. 3, [0001], line 12; p. 9, [0015], line 11, Fig. 1; p. 11, [0022], lines 1-11; p. 12, [0023], lines 4, 6, and 7; p. 12, [0024], line 1; p. 13, [0025], lines 13-14; p. 13, [0026], lines 4 and 10-11; p. 13, [0027], line 2; p. 15, [0030], lines 1-2; p. 16, [0032], lines 9-10; p. 16, [0034], lines 11 and 13-14, p. 18, [0038], lines 3 and 6; p. 18, [0039], line 5, p. 19, [0040], lines 1 and 7, P. 20, [0043], lines 1-5; p. 22, [0049], lines 2 and 10-11; p. 23, [0051], lines 2 and 4; p. 23, [0052], lines 1-5, Fig. 6; p. 24, [0056], line 2; p. 25, [0057], lines 2 and 4-5; p. 25, [0058], lines 3 and 9.

Count 1	support in '118 Application	support in '386 Application
[(e)] the improvement wherein the curvatures in a sub-scanning direction of at least two of the surfaces of said imaging lens vary continuously along a main scanning direction over the effective area of said imaging lens and	[(e)] Curvature of the sub-scanning plane of at least one of both lens surfaces Ra and Rb of the fθ lens changes successively in the effective range of the lens. See, e.g., p. 7, lines 18-21; p. 11, lines 14-20; p. 18, lines 8 and 9; p. 27, lines 6-9.	[(e)] See, e.g., p. 2, [Claim 2], lines 2-8; pp. 9-10, [0016], lines 1-7; p. 12, [0023], lines 1-6; p. 19, [0040], lines 4-6.

Count 1	support in '118 Application	support in '386 Application
[(f)] independently of the curvatures in the main scanning direction, and	[(f)] The lens shape in the sub-scanning plane is independent of the lens shape in the main scanning plane as shown by the equations. See, e.g., p. 11, lines 3-7; p. 18, line 15 through p. 19, line 2.	[(f)] See, e.g., p. 9, [0015], lines 14-16; Fig. 1; p. 11, [0022], lines 5-7; p. 19, [0040], lines 1-15, Eq. 2; p. 19, [0041], lines 1-9, Eq. 3; p. 20, [0042], lines 1-4; Fig. 7, Fig. 8.
[(g)] wherein the curvatures in the main and sub-scanning directions are non-symmetrical with respect to the optical axis.	[(g)] See (f)	[(g)] See (f)

Count 2

Count 2 is formulated upon the basis of Count 1 but further recites that the optical magnification of the imaging lens in the sub-scanning direction is constant over the effective scanning region. Applicant submits that this recitation finds support in the '991, '741, '118, and '386 Applications as follows:

(a) '991: pp. 18-19, [0028], lines 10-11; p. 28, [0050], lines 2-6; pp. 28-29, [0051], lines 10-13; p. 32, [0058];

(b) '741: p. 24, [0027], lines 5-8; p. 27, [0031]; p. 41, [0059]; pp. 41-42, [0060]; pp. 46-47, [0068]; p. 70, [0107]

(c) '118: p. 5, lines 6-10 and 15-18; p. 13, line 23 through p. 14, line 9; p. 14, lines 19-20; p. 20, lines 1-3; p. 21, lines 4-6; p. 22, lines 18-19; p. 23, lines 12-14; p. 24, lines 9-11; and

(d) '386: p. 7, [0013], lines 4-8; p. 8, [0014], lines 4-7; p. 14, [0028], lines 1-12; p. 16, [0030], lines 5-6; p. 21, [0045], lines 5-8; p. 22, [0049], lines 7-9; p. 24, [0054], liens 5-8; p. 25, [0056], liens 7-9, pp. 25-26, [0058], lines 13-15.

For these reasons, and those set forth above with respect to Count 1, Applicant submits that the '991, '741, '118, and '386 each constitute a constructive reduction to practice of Count 2.

E. Summary of proposed interference

The following Tables G and H summarize Applicant's proposal for the interference, with Counts 1 and 2 as proposed above:

TABLE G

Applicant **(Senior Party)**:	Manabu Kato
Application No.:	U.S. Patent Application No. 08/951,635 filed October 17, 1997
For:	SCANNING OPTICAL APPARATUS
Assignee:	Canon Kabushiki Kaisha
Accorded Benefit (for Counts 1 and 2):	(1) U.S. Patent Application No. 08/607,169 filed February 26, 1996; (2) Japanese Patent Application No. 7-66991 filed February 28, 1995; and (3) Japanese Patent Application No. 8-46741 filed February 8, 1996; (4) U.S. Patent Application No. 08/522,118 filed August 31, 1995, Patent No. 5,818,505 issued October 6, 1998; and (5) Japanese Patent Application No. 6-239386 filed September 6, 1994.
Claims corresponding to Count 1:	Kato Claims 61, 63/61, 64/63/61, 65/64/63/61, 66/65/64/63/61, 67/65/64/63/61, 68/67/65/64/63/61, and 69-72.
Claims corresponding to Count 2:	Kato Claims 62, 63/62, 64/63/62, 65/64/63/62, 66/65/64/63/62, 67/65/64/63/62, and 68/67/65/64/63/62

TABLE H

Patentee (**Junior Party**)	Koichi Takada, Nozomu Inoue, Takahashi Hama, and Yujiro Nomura
Application No.:	U.S. Patent Application No. 08/644,493 filed May 10, 1996, Patent No. 5,883,732 issued March 16, 1999
For:	OPTICAL SCANNER
Assignee:	Seiko Epson Corporation
Claims corresponding to Count 1:	Takada Claims 1, 3/1, 4/3/1, 5/4/3/1, 6/5/4/3/1, 7/6/5/4/3/1, 8/6/5/4/3/1, 9/8/6/5/4/3/1, and 10-13
Claims corresponding to Count 2:	Takada Claims 2, 3/2, 4/3/2, 5/4/3/2, 6/5/4/3/2, 7/6/5/4/3/2, 8/6/5/4/3/2, and 9/8/6/5/4/3/2

CONCLUSION

Since the requirements of 37 CFR 1.607 have been satisfied, Applicant requests that an interference, with Counts 1 and 2 as proposed above, be declared between the present application and the Takada, et al. '732 patent. Applicant also respectfully requests senior party status by virtue of the earlier filing date. In addition, Applicant respectfully requests benefit for priority of the filing dates of the '169, '991, '741, '118, and '386 Applications for proposed Counts 1 and 2.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE SPECIFICATION

The paragraph starting at page 1, before line 1 has been amended as follows.

This application is a continuation of Application No. 08/607,169 filed February 26, 1996, now abandoned, which is a continuation-in-part of Application No. 08/522,118 filed August 31, 1995, Patent No. 5,818,505.

The paragraph starting at page 5, line 22 has been amended as follows.

Figures 2A and 2B of the accompanying drawings are cross-section views of the essential portions of a single beam scanning optical apparatus in the main scanning direction and the sub scanning direction, respectively, [which apparatus has been proposed by the inventor in Japanese Patent Application No. 6-239386 (filed on September 6, 1994),] and show changes in the spot diameter (F number) in the sub scanning direction due to image height. In these figures, the same elements as the elements shown in Figure 1 are given the same reference numerals.

The paragraph starting at page 55, line 20 has been amended as follows.

Lastly, for the comparison with the scanning optical apparatus of the present invention, description will be made of the manner in which multibeam scanning was effected by a [the prior art] single beam scanning optical apparatus [shown in Figures 2A and 2B].

The paragraph starting at page 55, line 25 has been amended as follows.

Figures 28A and 28B are cross-sectional views of the essential portions in the main scanning direction and the sub scanning direction, respectively, when multibeam scanning was effected by the use of the [prior art] single beam scanning optical apparatus, [shown in Figures 2A and 2B,] and show the changes of the angular magnification in the sub scanning direction and the spot diameter (F number) in the sub scanning direction on the surface to be scanned, due to image height. Table 7 below shows the optical arrangement shown in Figures 28A and 28B and the aspherical surface coefficients of an fθ lens 86.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE CLAIMS

68. (Amended) An optical scanner according to claim 67, wherein that element of the imaging lens which has such a surface that the curvature in the sub-scanning direction varies continuously along the main scanning direction over the effective area of said imaging lens is made of [resin] plastic.

72. (Amended) An optical scanner according to claim 71, wherein that element of the imaging lens which has such a surface that the curvature in the sub-scanning direction varies continuously along the main scanning direction over the effective area of said imaging lens is made of [resin] plastic.

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